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AN ADDRESS;

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IN THE HALL OF THE HOUSE OF REPRESENTATIVES,

IN THE

CAPITOL AT LANSING,

ON THE

EVENING OF JANUARY 28th, 1857,

BY HENRY P. TAPPAN,

PRESIDENT OF THE UNIVERSITY OF MICHIGAN.

DETROIT:
PRINTED BY H. BARNS, TRIBUNE OFFICE.
1857.

LANSING, JANUARY 29th, 1857.

HENRY P. TAPPAN,

Chancellor of the University of Michigan:

DEAR SIR:—The undersigned having enjoyed the pleasure of listening to your excellent address on the subject of Education, delivered in the Hall of the House of Representatives, last evening, and believing its publication would be highly useful and gratifying to the people of the State and others interested in that most important subject, respectfully solicit a copy thereof for that purpose.

We are, with sentiments of regard,
Very respectfully yours, &c.,
A. H. REDFIELD,
EDMUND B FAIRFIELD,
SYLVESTER ABEL,
HENRY LEDYARD,
PERLEY BILLS.

UNIVERSITY OF MICHIGAN,
February 2d, 1857.

To the Hon. Messrs. Redfield, Bills, Abel and others:

GENTLEMEN:—I beg to acknowledge the honor you have done me in requesting a copy of my address for publication. It affords me great pleasure to comply with a request so courteously made by members of the Honorable Senate. There is no reason why I should withhold my address from publication; and it certainly could not be issued under more flattering auspices.

I am, very respectfully,
Your obedient servant,
HENRY P. TAPPAN.

ADDRESS.

Gentlemen—Members of the Honorable Senate,
and of the Honorable House of Representatives,
and Fellow Citizens of Michigan:

I thank you for the courtesy which has granted me the use of this Hall for the purpose of speaking on a subject, not among the least of those on which you are called to legislate, one of the deepest interest to you in all the relations of life, and one which comprises the sphere of my own particular duties. Called to preside over a State institution, and therefore, properly an officer of the State myself, it is in all respects appropriate that I should appear before you to give an account of the condition of that Institution, and to represent its interests. In the remarks I propose to make this evening, however, I shall not confine myself to the University, but shall endeavor to expound some of the great principles of Education, both as they lie in my own mind, and as I find them existing in that admirable system of public Education which has already given Michigan a high and enviable position among her sister States. If I shall not advance anything positively new, I may at least serve to afford entertainment for the hour, and do a not unprofitable service, in collecting together in one view those scattered thoughts, the force of which every man acknowledges, while he claims them as his own.

The life of man is two-fold: he has an outer life and an inner life. The outer life is a life of action, of industry, of art. The inner life is a life of thought, of reasoning, of desire, emotion and passion, of purpose and volition. In his outer life, he exerts his power over matter, and over whatever is objective to him—whatever he can handle and modify, or talk to and influence. In his inner life he exerts his power over himself—in directing and cultivating his power of thinking and reasoning, in developing and regulating his emotions and passions, in disciplining himself in right principles and worthy designs, in gaining and ripening all virtues—courage bravery, endurance, patience, modesty, truthfulness, benevolence, charity, the love of God and man.

His outer life exhibits his achievements in agriculture, manufactures, commerce, law and government, social organization, Science, Literature, and the arts of beauty, institutions of learning religion and charity, in whatever represents the improvements he has made in the world—the state of civilization to which he has advanced himself. His inner life shows the moving springs of all that has been achieved in his outer life—the ideal conception, the ruling desire, the thoughtful calculation, the acute invention, the skilful combination, the steady and indomitable purpose, the observation, the reasoning process, the definite conclusion—in fine, the working of spiritual faculties wherein lies the power of all improvement in his outer condition.

His outer life shows the objects which minister to his sustenance, his good, his enjoyment. His inner life shows the conscious experience of all good, of all satisfaction, of all enjoyment and delight.

Which is the most important and valuable to man—the outer or inner life? All will reply at once, the inner life; and that for two plain reasons:

First, The inner life makes the outer life, gives form and character to it. There can be no outer life, without an inner life; and the outer life will be good, beautiful, and glorious, just in proportion to the wisdom, virtue and worthiness of the inner life.

Secondly, The outer life has no importance or value whatever, except as it ministers to the inner life. All arts, all industry accomplish nothing for us unless they serve our thoughts, give us satisfaction and contribute to our sense of happiness and well-being.

The most dainty food is of no value to him who has lost the sense of enjoyment; a splendid house richly furnished, and gay garments are vanities to him who is agonized with disease; all the beauty of the world is naught to him who cannot see. But if instead of a deprivation of faculties of enjoyment, we imagine the case of him whose inner life has not been developed and cultivated, so as to be prepared to receive the good, and the enjoyment which is opened to him on every side; of what consequence is it to him that every thing is ready for him when he is not ready to receive it? The wild savage, introduced to the comforts, the refinements, the enjoyments of civilized life, gazes in wonder for a few days, then tires of what he not does comprehend, and is not prepared for, and hastens back to his ancient forest.

The savage cannot estimate and enjoy the outer civilization, because, he has no civilization within. What he cannot estimate and enjoy, he not only easily dispenses with; he even despises it. His misfortune is that his inner life is not developed.

On the same principle just as any people fall short of a proper development of the inner life, are they rendered incapable of appreciating a high civilization, and are unwilling to exert themselves to promote it. You must mould the man himself, if you would give refinement and elevation to his outer life; and if you have power irrespective of himself, to throw around him the forms and charms of civilization, you must bring them into such relations to him that he shall be wrought upon and moulded by them, or he will pass them by, with contempt. This outer and inner life are reciprocal to each other. They minister to each other, they promote each other, they imply each other. One cannot exist without the other. Hence they go on hand in hand together, each contributing to the other; the one the power which creates civilization, the other the materials out of which the forms of civilization are to be wrought.

Where in any nation hitherto uncivilized, civilization is born, its life is enkindled in the thought of some solitary individual. Sometimes he is a conqueror, like Charlemagne, impressing the outward forms of civilization upon unwilling tribes of barbarians; until instruction comes to do her patient and sure work: Sometimes a philosopher like Thales, expounding the elements of thought, and venturing upon some theory of nature: Sometimes a poet like Homer, singing a lofty song of heroism and beauty: Sometimes the inventor of a useful art, like the deified Demeter, who taught the Greeks Agriculture, when—

> "Far back in the ages
> The plough with wreaths was crowned;"

And—

> "The hands of kings and sages
> Entwined the chaplet round."

But, whatever be the starting point, the process must ever be the same. The outward forms impressed by the conquoror must be animated by a spiritual cultivation: the truths taught by the Philosopher must enter the national thought and heart to produce legislation, moral and social order, divine worship, and rational conceptions of the constitution of the world, and to lead forth human exertions to various improvements: The song sung by the poet must inspire to deeds that shall create nations, and form the subjects of noble histories; give the inspiration to beautiful arts, and awaken other poets; and lead the way to a national Literature, to popular Education, and to a culture so varied and rich, that Athens shall become a source of civilization through the sweep of centuries to the end of time: the art of the benignant inventor, while it provides more refined and wholesome food, must call into being sister arts, that all together may give birth to higher forms of life, and inspire man with a sense of his noble capacities, and of the grand possibilities which open before him. The inner life of the few scatters thoughts among the many. The scattered thoughts are a divine seed sown in human hearts. From them are born new conditions of human society. These new conditions are facts which react upon human thought, far and wide. Then thinkers, and seekers after Science, and poets, historians, and orators, and inventors of useful arts, and legislators, and statesmen are multiplied. The inner life developing, gives birth to the outer life. The outer life improving, calls forth more richly the inner life. Thus thought and work embrace each other. The one, the divine Apollo—fills the world with light and melody: The other,—Hercules—the god of strength—subdues the earth by his appointed labors.

Thought and work carry forward civilization from age to age. The wonders of modern improvement show the combined agency of thought and work.

Thought without work would be an abstract contemplation. Work without thought would be a blind man groping about.

I would remark here, however, that it is far more easy to send out Work into the field of labor unaccompanied by Thought, than to set Thought a thinking so that he shall not call out loudly for Work. Work may employ his hands rudely and unskilfully, and accomplish little, simply, because Thought is not beside him. The condition of savage tribes, the condition of many nations, the condition of many individuals whom we may have observed, is a sufficient evidence of this. Work, indeed, when he aims to make improvement, never exerts himself wholly in vain. But then this very fact, that *he aims to make improvement*, shows that Thought is beside him. But we all know that Work is often very busy in a beaten or random track, where no improvement is aimed at.

On the other hand the first business of Thought is to think; while, it is not the proper business of Work to work without thought.

The very business of Thought implies advance in knowledge, the unraveling of difficulties, and wider explorations; while the business of Work does not necessarily imply improvement, and may make only destruction. Thought may be ill-directed, and may not pursue the best methods, and therefore may fall into errors: but, then the very effort of thinking is in itself good, and is a search after truth and knowledge. All thought therefore it may be hoped accomplishes something: the search after the elixir of life and the philosopher's stone, led the way to the discoveries of Chemistry; the dreams of astrology led men to observe the stars; and the absurdities of metempsychosis contained the ideas of retribution and immortality.

But one thing is certain, that all thought which leads to real knowledge must end in some work of improvement.

The distinction so often made between abstract and practical knowledge is a very absurd one. Science has its abstract methods and formula, but science always aims at realities. The formula by which Newton demonstrated the law of gravitation; the formulæ by which La Place demonstrated the mechanism of the heavens; the formula by which Le Verrier demonstrated the existence of another planet; the formulæ which mechanicians and engineers employ in their calculations; the formulæ which chemists employ to represent the compositions of elements, are all abstract: but are not Astronomy, Mechanics and Chemistry, real Sciences? Do they not teach us the laws of the Heavens and the Earth?

And even Metaphysics, which is deemed abstract beyond all things else, is conversant with the laws of our being, the constitution of the universe, the being of a God, and contains the fundamental principles of thought, of law, of legislation, of morals and of religion.

If all these Sciences, and together with them, the beautiful arts, only ministered to the increase of our knowledge, the dicipline of our faculties, and the multiplication of the enjoyments of our inner life, they would be in the highest degree useful to us, in the proper sense; for, we have seen, that our inner life is our most real life, since all that we mean by happiness is experienced here. But in addition to this, who does not know, that Astronomy has given birth to the art of Navigation; that the abstractions of Mechanical Science build our ships, dig our canals, construct our rail roads, build our bridges, and have hung a rail road on wires, over the foaming gulf beneath Niagara, and made it as firm as the neighboring rocks; that Chemical Science expounds the principles of Agriculture and Manufactures, and makes them simple and intelligible arts; that the principles of the fine arts determine the harmonious colors of all our useful fabrics, the forms of our dwellings, and our furniture, and of a thousand implements of daily use?

The whole universe is the result of thought and work. God thought from eternity. In the universe, in its creation, its progress, its changes, he is embodying thought. The abstractions of Eternity take the forms of time and space. And in our thinking, what are we aiming at, but to gain the knowledge of His works by connecting facts with principles and laws? And in our works, what are we aiming at but to embody our thinking in improvements which we are appointed to make, and for which our powers are fitted?

Of God, we may say, his inner life is in the infinite and serene depths of his own consciousness; his outer life in his visible universe, and in the course of his providence.

So also, of man we may say, his inner life is in the consciousness of thought, emotion, passion and volition; his outer life in all that he accomplishes for his own good, and for the good of the world.

With God, thought and skill are absolutely perfect. With man thought and skill require development and discipline, and are progressive. Uncultivated, he is a feeble, erring being, and often falls behind the brutes in their instinctive intelligence. Cultivated, he rises to the dignity and scope of reason; he advances in knowledge, and improves his condition, indefinitely; he reaches Sciences which scan the universe; he becomes the author of useful and beautiful arts; he attains to social refinement, and moral excellence, and reveals the divine likeness impressed on his soul. He becomes conscious that he is the appointed lord of the lower creation, and that his destinies point to immortality.

In view of this comparison of the outer and the inner life of man, we gain the clearest and most perfect definition of education. It is the cultivation and discipline of the spiritual faculties of man: the seat of his inner life, of all his experiences, and of all his enjoyments; those faculties wherein consist his manhood, wherein lie all his strength and greatness, and which give forth his outer acts, and cause the whole movement of his outer life.

The development and action of those spiritual faculties make his inner life. His inner life makes his outer life. Upon education, therefore, depends all that can be of value to man. Leave him to nature, and he is a savage. Give him an imperfect education, and, to the same degree, he makes an imperfect use of his faculties, shows an imperfect life, and is limited in his happiness. I wish it to be understood, that under this idea of education, I comprehend moral and religious cultivation, also; for Morals and Religion imply a certain use of our faculties, under clear perceptions of duty.

Hence, we see, how it comes to pass that the progress of civilization is identified with the progress of education, and that civilization is nothing less than education widely diffused among a people.

In order to fix standards of education, we must look to nations among whom education has reached the highest grades; or, we must look to individuals who are themselves examples of the highest degree of educational development hitherto attained by man. All men may judge of the value and importance of education, by observing its results; but no man can properly comprehend any process of education who has not himself passed through it.

All men can receive delight from music, but the musician alone perfectly comprehends the process of becoming a musician. All men can admire statues, painting and noble buildings, but the artist alone comprehends the discipline which makes an artist. All men can appreciate the value of the labors of an engineer, by simply looking at railroads, bridges, edifices and fortifications, but the engineer alone comprehends how an engineer is to be made. And so on, with respect to every form of intellectual discipline.

(The scholar—the man of ripened knowledge, is most competent too, to judge, not only of the highest grade of science which he has attained; he is no less competent to judge of the whole process from the beginning, for he, no less than the man who stands far below him in attainments, has had experience of the first steps of knowledge.) Newton and La Place began with the alphabet, studied the spelling book, learned to read, and committed to memory the multiplication table, just as he did who paused at these simple rudiments of learning. Newton and La Place, therefore, may talk intelligently of the education of children: but how can he talk of the processes of education, in the higher sciences, who has never advanced beyond the elements of knowledge?

Nay, more, the man of the largest culture must be most competent to judge of all education, because, having had experience of the discipline of all his faculties; having handled all the tools of the human mind; he is thus enabled to judge of the whole process, to estimate the mutual dependencies of all the parts, and to see clearly what constitutes the framework of a Public System of Education. It was in accordance with this principle that the Government of France appointed the greatest philosopher of France, and one of the greatest of modern times, the Minister of Public Instruction, and committed to him the work of revising the whole educational system.

Indeed, as education is a matter of the highest interest to any people, as the national vitality, the national character, the national prosperity, all depend upon it, more than upon anything besides; as it really involves all that gives value to human life, it may well engage the mightiest intellects furnished with the most varied acquirements, inspire the philanthropist and patriot, and invoke the wisdom, the fostering care, and the commanding power and energy of the State.

No one sided or partial views will avail here, sectional and party jealousies are out of place; competition, and opposition of interests can only be called up by ignorance, and if allowed to prevail must prove suicidal. It is the education of the people we are aiming at; the education of the whole people; it is a system of education, that shall comprehend all education;—which, of necessity, beginning at the lowest grade, shall not stop short of the highest; a system which, bringing the rudiments of education to every man's door, shall, at the same time, provide all the higher grades; and open fountains of knowledge, containing, all the science and learning which the human mind has arrived at, so freely, that all who choose, may come and drink to their fullest satisfaction. In ordaining a system of education, the rights of humanity demand, the spirit of a free people claiming all the privileges which belong to man demand, that we shall not confine its scope to a primary education, nor yet to a secondary; but, that we shall afford the means and opportunities of gaining all knowledge, and of making scholars as ripe, and as renowned as the world can produce.

But in addition to this, there is a grand principle which we must look at, and that is, that no part of our educational system can be perfected, without introducing all the parts and combining them into a harmonious whole.

I have already discussed this principle in my Annual Report to the Regents, copies of which have been laid on your tables. What I shall now say will only be supplementary to that.

That the perfection of each part of a system of Education requires the development of all the parts, appears from several considerations.

First.—From the natural order of the development of the mind, and the several stages through which it passes. These correspond to the order and stages of the physical development. With respect to both body and mind, we begin our career in the utter feebleness of infancy; we find our first strength, and collect our first remembered experiences in childhood; we gain our vigorous and determined growth in youth; and we realize our ripened powers in manhood.

Now any series of gymnastic exercises, adapted to promote our physical growth, would be required to follow the indications of nature; and childhood, youth, and early manhood, would each demand their peculiar exercises. But not only this: the exercises of each period would have to be ordered in reference to the exercises of the succeeding period, each to introduce the other and to prepare for it. Our gymnastics for the child would contemplate the fact that the child is passing into a second period of growth, and would not be conducted as if the child were always to remain a child; and so our gymnastics for the youth would look forward to manhood; and our gymnastics for early manhood would be the winding up of the previous discipline, and would be ordered according to the developed capacities and ripened strength. And thus the entire series of exercises would form a system of regular gradations, where each gradation is necessary to constitute the whole, and where the first and second find their end and completeness in the attainment of a strong and noble manhood.

Analogous to this are the exercises which serve to develop the mind. Education is a two-fold process: a process of accumulating knowledge, and a process of unfolding the capacities of knowledge; and these two processes go on harmoniously together. Our capacities of knowledge are given us for the purpose of gaining knowledge, and the labors and acts of gaining knowledge develope and strengthen the capacities of knowledge.

The three periods of life we have mentioned are peculiarly the periods of education: for, although education, really, never comes to an end, yet, during these periods, those principles are acquired, and that discipline is accomplished which fix the character, and determine the destiny. Now, there are knowledges peculiarly adapted to the natural capacities and proclivities of childhood, and calculated best to unfold the mind during this period. The same is true of the succeeding periods. And these knowledges adapted to the several periods, properly follow each other both logically and psychologically: I mean that one knowledge properly makes preparation for and introduces another: and that the discipline of the mind effected by the acquisition of one knowledge, makes preparation for, and introduces that which is effected by the next in order. And so the mind easily and naturally, and without being forced, grows in knowledge, and unfolds and strengthens its capacities.

It is in this ordering of knowledge after knowledge, by logical connections, and made to correspond to the successive periods of discipline, that the science and art of education consists: the greatest of all sciences—the greatest of all arts, for it is the building up of the human soul in truth, beauty, and goodness, preparing it for a useful and noble life on earth, and for glory and immortality when this earthly scene shall close.

Now from this view of education, it is very evident, that all the gradations and parts are closely linked together, and form one harmonious system. We may not educate the child as if he were to remain a child, nor the youth as if he were to remain a youth; but childhood reaches forward to youth, and youth to manhood, and manhood brings together all the results and makes the last and crowning effort of discipline.

It may be the misfortune of many of us that we have not been conducted through this orderly and harmonious discipline; but our misfortune may have arisen from the very want we are aiming to supply. We found not at hand a fully developed system of public education. We received, perhaps, only the education of childhood, or only imperfectly the education of youth, and were left to struggle on afterwards as we best could; or we attempted the education of manhood without the necessary preparations of the preceding periods. But, we will not adopt the imperfect course into which we were forced by circumstances, as our standard of an educational system, when we apply ourselves to the great work of forming a system for unborn generations. We will rather, taught by our own experience, relieve those who shall come after us, from the impediments and imperfections which we now, in respect to ourselves, deplore.

From the consideration of the natural order of the growth of our faculties, and of the natural adaptation of different knowledges to promote the growth, as well as of the logical relations of one knowledge to another, it becomes plain to us, that Primary Education as the starting point and foundation of all education, requires to be perfected in the highest degree. Let the primary education be defective, and the whole subsequent course must be defective likewise. We cannot, therefore, build up a sound secondary or intermediate grade of education, unless the primary stage is so ordered as to prepare for it, and to introduce it.

On the same principle, it is equally plain that we can never succeed in perfecting our Highest Grade of Education, without perfecting the intermediate grade. To turn raw, undisciplined youth into Universities to study the Professions, to study the Learned Languages and the Higher Sciences, is a palpable absurdity. If they have not gone through a proper discipline in the Primary and Intermediate Schools, they cannot be fitted for the University. It is true, indeed, that wanting these early advantages, they do contrive by hard exertion to make a sort of preparation for the University. But they labor under manifold disadvantages; and they rarely, if ever, reach that thorough, proportionate, finished, and beautiful scholarship, which can generally be the result only of a process which early begun in the school of childhood, is thence regularly carried on in the School of youth—forming the apprenticeship of the scholar—until it introduces him to the University, with tastes, habits, and culture so far advanced, that he can apply himself thoughtfully and manfully to the higher studies there opened to him, and for which he is conscious of being now prepared.

Taking then the University as that form of institution which presents the culminating point of Education, how clear it is that it is but the part of a system which embraces equally with it, the Primary and

Intermediate Schools, and that it is impossible that it should exist alone! The friend of the Higher Education must therefore of necessity be the friend of the lower grades. He that should attempt to create Colleges and Universities, to the neglect of Primary and Intermediate Schools would exhibit the folly of one who should plan the upper stories of an edifice without any regard to the foundation and the lower stories; or, who should attempt to poise a steeple in the air, without any structure beneath for it to rest upon, and adorn.

Another consideration which goes to show the mutual dependency of the several parts of our Educational System, is drawn from the very nature of all human learning.

All human learning begins with simple elements, and thence developes into wide and more or less complicated systems.

Written language begins with an alphabet—a few simple signs, and thence expands into syllables, words, and sentences—into prose and poetry, into forms to express exact science, into the diction of the historian and orator, into every variety of style and use.

Simple ideas of increase and diminution grow into the science of numbers. A few plain axioms are the germs from whence pure science is drawn out into all the forms and vastness of analysis.

Facts familiar to our every-day life are the beginning of the science of nature. A few precepts, like the decalogue, which a child may learn, constitute the foundation of ethics and jurisprudence.

Ballads and traditions are the birth of history. Facts of the common human consciousness, and spontaneous impulses and beliefs, are the starting points of philosophy. The simple law of gravitation which one may see in the falling of an apple, explains the motions of the planets, and grows into a sublime astronomy. The air we breathe, the water we drink, the soil which the plow turns over, the food we eat, our pleasant winter fires, contain a Chemistry present to us all.

The logical, the natural development of all human knowledge is from obvious facts and principles to far reaching, all comprehending systems. And thus the growth of knowledge answers to the constitution of the human mind, which in its nascent powers is feeble, but goes on from strength to strength, until the sublime capacity of the human intellect is made manifest.

And, again, to the gradual growth of knowledge, and to the gradual unfolding of the human mind, corresponds a properly ordered system of education, which, of necessity, becomes a gradation of discipline.

As knowledge, from its nature, grows from simple elements; as the human mind, in its nature, grows from infancy and childhood; so a system of Education must spread out from the school of childhood, to the school of manhood; from the Primary School to the University.

In the development of a system of Education, we can no more stop short at the Primary School, or at the Intermediate School, than the growth of the mind can stop short at childhood, or youth; or the growth of knowledge can pause in the elements, or in the first stages of development from these elements. On the other hand, in conducting such a system, we can no more leap from childhood to manhood, ignoring the discipline of youth, than we can leap from the elements of knowledge to its last developments, ignoring the intermediate processes; or push the powers of the child into the powers of the man, ignoring the growth of these powers during the period of youth.

How clear it is that the growth of mind, and the growth of knowledge both alike answer to the necessary parts of a true Educational system; and that the Primary School, the Intermediate School, and the University, each developed to its proper measures, each perfected in its place, and in relation to its immediate ends, and all bound together in the natural harmonies of progressive thought and progressive knowledge, make up that complete and beautiful system, equally ap proved by philosophy, and confirmed by the experience of mankind.

To this division of our discussion belongs another consideration of the highest moment: the relation of the ripest developments of knowledge to the first stages of knowledge; the relation of the maturest growth of mind to the first stages of growth; and the consequent relation of the highest grade of an Educational System to the lower grades.

When knowledge has reached its ripest developments, then the elementary facts and principles, and the first growth from them, are placed in a clearer light, and become more perfectly understood. The reason is obvious: The elements are illustrated in the process of development; and in the last development, alone, are their full compass and bearing made manifest.

The principles are now fully wrought out,so that we are now placed in a position to understand them. Thus it is only when we have reached Algebra that we can complete the science of arithmetical calculation, and explain its principles: it is only when we have reached the highest Mechanics that we can explain the simplest rules of mechanical skill, which were, at first, learned by bare experimenting, such as the building of houses, ships, and bridges, and the construction of a variety of implements, in ordinary use: it is only in the latest developments of Chemistry that we are made to understand the processes of agriculture, mining, and manufactures; and the true composition and proper uses of all the substances of nature: it is only the most profound investi gations in Physiology which adequately explain the structure of plants and animals with whose general conformation we have always been familiar: it is only the highest Astronomy which corrects our rules of navigation: it is only the widest observations, and the acutest reasonings in Meteorology, that explain those phenomena of clouds, and lightnings, and winds, and rains, and of variable temperature, which all men notice, and upon which they all attempt to become weather prophets: it is only the profoundest philosophy which explains the simplest facts of the human consciousness; and it is only the most perfect literature that reveals the full power of the elements of language. We might multiply illustrations indefinitely.

And so, likewise, in the maturest growth of mind alone, can we adequately comprehend the principles which regulated the earliest growth. It is not in childhood and youth that we comprehend ourselves. In manhood we have attained a development which enables us to understand the previous periods. And so it is manhood that must direct childhood and youth. And hence it is cultivated manhood that must ordain the principles of Education for the child and the youth, and prepare the fitting instrumentalities. Tribes utterly barbarous do not reach even the invention of an alphabet, any more than a child invents an alphabet for itself. The very existence of an alphabet presupposes some inspiration to thought, and the possession of some ideas worthy to be recorded. And hence, whenever an alphabet is formed, a literature already exists.

This may be taken as a type of the relation of the highest grade of Education to the lowest. No barbarous people ever move on in a mass towards education. Some one individual, or some few individuals, led by some extraordinary circumstances, or inspired by higher genius, or by both combined, separate from the mass, attain a measure of cultivation, and lead on Education. A Cadmus who has attained the consciousness of Divine thought and aspirations, invents an alphabet and writes; and, like a god, he teaches his fellow men.

The highest order of intellect instructs the lower. He who has caught the lamp of knowledge from the skies, passes it around. The teachers of mankind have ever been comparatively the few. The great discoverers of Science the few. The great poets, artists, philosophers, historians, orators, statesmen, and heroes, the few.

And these were the lamp bearers of truth and knowledge, the leaders of all improvement and civilization, the founders of institutions, the regenerators of mankind. And thus, in the progress of education, the schools of philosophy, and the higher institutions of learning, of necessity, first came into existence. For these were associations of men who had attained the light, and who were making disciples, and thus multiplying themselves, preparatory to a universal diffusion of knowledge.

The last result of this great movement, we see in modern times, when education having reached the whole people, appears in the compact organization of a system having its beginning, its middle, and its end,—its primary, its intermediate, and its ripening processes, and where all the parts go to sustain each other.

The lower grades of education feed the higher, as childhood grows up to youth, and youth matures in manhood. The higher grades educate the lower, and provide all the means of instruction. One distinguished philologist makes a spelling-book for children; another makes a grammar. A profound mathematician furnishes the materials of a common arithmetic. The labors of a scientific geographer furnishes the materials of a common school geography. Profound chemists, naturalists, astronomers, and physicists, furnish materials for all the text books on their subjects used by boys and girls. The labors of the most learned historians form the sources from which our text books of history are obtained. Selections from the writings of elegant scholars and authors compose our common reading books. The makers of school books, very generally, are but secondary authors or compilers, and could not exist were there not great, profound, and finished scholars, out of whose treasures the books in ordinary use might be compiled. And these scholars are made in the highest grade of literary institutions. Thus, you see how intimate and necessary is the relation of the higher to the lower.

But this relation of the higher to the lower institutions of learning, together with the mutual dependency of all the parts of a true educational system, appears, still farther, when we consider the mutual action of these parts in the great mechanism by which instruction is maintained and carried on.

The mechanism of an educational system reveals continually the relation of teacher and pupil. The first possessed of maturity of powers, of gifts, of knowledge, and of art and skill in disciplining and imparting, which place him above the pupil; and make him a benefactor and a master, a pedagogue—that is, a leader or guide of youth. The second with powers undeveloped or only partially developed; beginning to gain knowledge, or somewhere in the process of gaining it; without experience, or with small experience; with habits unformed or unconfirmed, and character yet to establish and strengthen; and, therefore, of necessity dependent upon instruction, upon patient and fostering care, upon inspiring example, and the trust and hope awakened by genial communion with a mind already educated and matured.

It is in the perfect development of this relation, and the richness and fullness with which influences from the higher stream down to the lower that the power and vitality of education consist. If there can be no operative system of education where there are no pupils to be educated; equally true is it, that there can be none, if there are no teachers to do the work of education. And in the work of education as in all other work, with a given material to work upon, the quality of the work will depend upon the character of the workmen. If we were to collect together the pupils of an entire State ready to receive education, and had them distributed in the most beautiful and convenient edifices properly furnished, and if we had provided an ample fund to sustain them all in the process of education; still, of what account would it be, if we had no teachers to do the work of education, or if we had teachers who were only such in name, and really required to be educated themselves, instead of undertaking the work of educating others? Would it not be very much like building a huge and splendid manufactory, furnished with splendid machinery, and, with material enough to convert into useful fabrics, but without any workmen to manage it, or with such incompetent workmen that they would only damage the machinery and spoil the material.

Believe me that the greatest of all wants, in undertaking a system of education is the want of proper teachers. Without them you can do nothing; with them you can do every thing. If you have no books they are living books; or they can make books if needed. If you have no school buildings, they can teach in any buildings, or in the shade of trees, or in the open air. Like Abelard, who when banished from the halls of the University, went into the desert and taught the multitude of earnest and devoted pupils who flocked after him drawn by the power of a living and eloquent voice.

Give us the skilful mechanic—the artist, and we can have a useful fabric manufactured. Give him to us without tools—for he can make his own tools if need be,—rather than tools without him, for tools without him can do nothing.

Give us the teachers,—the men who have the knowledge and skill to educate, and then we can carry on the work of education, rather than all other appliances without teachers. Let not our great concern be, what buildings we can erect and what books we can introduce; these, indeed, are needful in their place—let our great concern be how to provide the teachers—the living working power of education. Provide the most abundant funds; make education free; make it as free as the air we breathe, the water we drink, the light by which we see: but, first of all provide the great power of creating education—be sure that you have the gift to dispense, ere you undertake freely to dispense it.

This, after all, is the great want of our country, in respect to education—the want of properly qualified teachers. We can raise the funds, we can build the school houses; but where shall we get the teachers.

Our primary education is defective, and must forever be defective, until this want is supplied. Our secondary, our intermediate education cannot be developed until this want is supplied. And we never can have efficient colleges and universities, until we have a sufficient number of ripe scholars and professors to conduct them. I heard, last summer, an eminent man, and a sufficient authority on this subject, remark, in speaking of the establishment of a great and complete University at Albany, or New York, that in his opinion, it was possible to establish only one such institution in our country, at the present time, for the reason that in our country we could not find eminent scholars enough to supply more than one.

From the lowest to the highest institutions the great want is of the same character.

Now in establishing a system of public education, for the time being, we shall be compelled to employ such teachers, in all grades of education, as we can find. We can only do our best. But then in arranging such a system, our great aim must be to arrange it in such a way, that in its natural working it shall go to supply this want. We may, indeed call in teachers from abroad; and this, at the beginning we shall be under the necessity of doing to a greater or less extent. But we cannot consent to place ourselves, perpetually in such a condition of dependence: besides, it is utterly impossible for us to supply ourselves, fully, with teachers in this way.

We must have a system which at the same time, that it operates to educate the people at large, accordingly as they seek education in its different degrees, must operate also to raise up teachers for every grade of institution, and thus keep the great machine in motion; just as in a manufactory, we must arrange such a system of operation, that we shall both manufacture the needed fabrics, and instruct and multiply skilful workmen to keep the manufactory in operation.

But, it may be said this must follow as a natural and necessary result. But it cannot follow as a natural and necessary result, unless, we adopt a proper system.

Let us suppose a people to determine that they will have only a system of primary schools, and that education shall not go beyond this. Would such a system sustain itself?

By no means. In the first place, such a system could not supply the school books: for the spelling book, the reading book, the arithmetic, the grammar, and so on, which are to be used here, cannot be made here, but must be supplied by a higher measure of knowledge than is gained here. The boy or girl who has finished at a primary school is not competent to make the books out of which this school is to be instructed. All know that our school books are not made by those who have acquired only the knowledge which is taught in primary schools.

In the second place, a primary school cannot educate the teachers for primary schools. A boy or girl direct from such a school is no more competent to teach in such a school than to write books for it. More knowledge and discipline must be gained somewhere else before the office of a teacher can be undertaken. A system of education, therefore, embracing only the primary school, must break to pieces.

Hence we must have a higher grade of school, for the education of teachers for the primary school. This higher grade, in general, we have in the form of Academies or Union Schools; and, especially, to teach the principles and art of teaching, in Normal Schools. We all acknowledge then that we must have a secondary grade of schools.

But, now, next, let us suppose a people to determine to embrace in their system of education only primary, and secondary or union schools, and normal schools.

The same difficulty would arise with respect to our secondary grade—our union and normal schools. Here as in the primary grade, the teacher must come from a higher grade of education.

The measure of education gained in the secondary grade, does not fit the pupil to write the books for that grade, nor to teach in it, unless, it be in the lower classes. Those who conduct our Normal, Union and Agricultural schools have been educated in Colleges, or have, in some other way, reached the measure of knowledge taught there.

Let us next proceed to the Colleges where we have a still higher grade of education, and now the question becomes, how shall we furnish professors for the Colleges? Can we take the graduates of a College and make professors of them at once? They may be fitted to teach in the institutions below the College; and the best graduates as tutors or assistants, under the full professor, may teach the lower classes in College. To be a proper professor in the College a man after he graduates must ripen himself in languages or in mathematics, or in any branch to which he specially addicts himself, by several years hard study. Thus our best professors, and those worthy of the name have done; and not a few have gone abroad to reach advantages which they cannot find at home.

It is just here that we gain a view of what is meant by a University when fully and properly developed. A college strictly speaking belongs to the secondary grade of study, and forms the highest point of that grade. It is the end of the intermediate disciplinary course. When students have finished this course and graduated in it, then they are prepared to enter what is properly a University.

This is an institution where students have an opportunity, not merely of pursuing professional studies, but of pursuing, to completeness, scientific and literary studies, and of preparing themselves to become College and University professors.

Our higher institutions as they are generically called, have a variety of character. They are generally alike in one thing—the power of conferring literary and scientific degrees: but the scope of their educational system varies much. Some are barely colleges, with more or less advantages, according to the character and number of their professors, and the libraries, museums and apparatus they may possess. Others like Yale, Harvard, the University of Virginia, and our own University have the ordinary college course together with professional and scientific schools which properly belong to a University grade of education.

In none of our institutions however has the University grade been fully and adequately developed.

Our most eminent scientific men regard this as the greatest educational want of our country, and one which in its influence is alone adequate to supply the want of Education in general. Hence some of the leading Professors of Harvard, unquestionably the first institution in our country, or standing side by side with Yale and the University of Virginia in that rank, are earnestly promoting the scheme of a great University in Albany or New York. The former place has already taken the initiative by establishing the Dudley Observatory; and not a few men of this character are, at this moment, looking with earnest hope to the University of Michigan as an Institution which may become a great and true University, and be the crowning glory, not only of the State to which it belongs, but of the whole North West.

The working ef the whole Educational system is now clearly before us. Universities proper, educate students for the Professions, for Scientific and Literary labors, and for the highest order of Professors. Colleges educate students in preparation for the Universities, and for Teachers of Academies, Union, Normal and Agricultural Schools; for the entire secondary grade, short of Colleges themselves; and the Union, Normal, and other schools of this class, educate students in preparation for the Collegiate courses of study, whether found in Colleges simply, or in Colleges with a University Department, and for Teachers in the Primary School; it being the special object of the Normal School to communicate the principles and art of Teaching.

Thus in the working of this mechanism each part goes to sustain the others. the lower schools prepare pupils for the higher; while the higher prepare teachers for the lower. Leave out any part, and the system is imperfect and cannot work efficiently.

I stand here particularly as a representative of the University; but I cannot forget that I am representing one of the parts of a system consisting of other parts, also equally necessary. The University is particularly committed to me as its Chief Executive Officer; but, I profess not to have the wisdom or skill to carry it on, independently of the other parts. I profess to be equally the friend of all, because I am the friend of education, and all are necessary to education. I deprecate all collision, all disunion, all opposition of the one to the other, as utterly suicidal and destructive of the whole. I advocate warm, sincere and earnest friendship among the Teachers of all grades, and among all the supporters of Public Education. I plead for harmony, for united action. I apply to our system of education, the noble language which the great Apostle applied to the Christian Church—" The body is not one member, but many. If the foot shall say, because I am not of the hand, I am not of the body? And if the ear shall say, because I am not the eye, I am not of the body; is it therefore not of the body? If the whole body were an eye, where were the hearing? If the whole were hearing, where were the smelling? and if they were all one member, where were the body—is it therefore not of the body? But now are they many members, yet one body, and the eye cannot say unto the hand, I have no need of thee: nor again the head to the feet, I have no need of you." Therefore, "There should be no schism in the body; but that the members should have the same care, one for another, and whether one member suffer, all the members suffer with it; or one member be honored, all the members rejoice with it."

I utter these sentiments from my heart; and I do it in the hope that the Honorable Legislature, and the citizens of this State will fully understand me, and the character and tendencies of the Institution I represent. It is time that misapprehension should come to an end. It is time that all the high minded and genuine friends of education should see eye to eye, and if there be any whose policy it has been to misrepresent, it is time that they should comprehend that there is a manlier, a nobler and a wiser course.

I am here not so much the advocate of the University in particular, as the advocate of a true system of Public Education, of which the University is a necessary and very important part. The idea of this system I by no means claim to have originated. This is an honor which does not belong to me. It is to the honor of Michigan that the men who figured in her earliest history clearly conceived of this system and early promulgated it. The documents compiled by the late Superintendent of Public Instruction in the book entitled "Public Instruction and School Law," alone gives the fullest evidence of this. I doubt whether I have at any time, while in this State, advanced a sentiment on our system of education in which these documents do not anticipate me. Sure I am, that I have not advanced anything in which I am not fully sustained by the spirit of these documents.

There has always been abroad in this State the idea of a great and true University; of schools preparatory to it, once known as "Branches," and now virtually revived again in the system of Union Schools; and of Primary District Schools. Indeed, from the discussion through which you have permitted me to conduct you, it is perfectly evident that no proper system of education can be devised which does not embrace these gradations, and that their proportional and full development is the perfection of such a system. When I came to Michigan, judging from your educational documents, I found the stream of public opinion moving in this direction. I thought it the right direction. I threw myself into the stream, desirous only of moving with it, and of contributing, according to my ability, to the energy of its movement.

Regarding this then as the system which you had really adopted, I saw very plainly, what every one admits, that in none of its parts was it fully developed.

The University, instead of answering to its name, was only a small College. In the intermediate grade there was only one State Institution —the Normal School. That the Primary Schools had by no means reached their proper measure, I had daily evidence of, in the young men who resorted to the University. It was plain from their examination for admission that in the school of childhood as well as in the school of youth—in the primary as well as in the preparatory school, they had not received that thorough and systematic discipline, which is indispensable as a proper introduction to the courses of the University: so that at the very time they were pursuing a higher education they were under the necessity of making up many defects in their earlier education.

Within a few years past the whole system has been advancing. The

Primary Schools have been improved through the influence of the Normal School and Teachers' Associations. Union Schools, then just commencing, are rapidly coming into being. The people have shown here a most enlightened and commendable zeal. An Agricultural School also has been established, and is just going into operation.

The advance in the University has, unquestionably been marked, and decided. We have, now, not only the classical course in which the Latin and Greek languages are required for admission; we have also a scientific course, and a course in civil engineering, for admission to which no knowledge of the Latin and Greek is required; and in addition to these, we have a select or partial course, in which students pursue such branches as they may particularly desire to qualify themselves in.

Our last year's catalogue shows that somewhat more than one half of the students of the department of Science, Literature and the Arts belonged to the three courses, for admission to which the Latin and Greek languages are not required. The students in these courses enjoy all the privileges of the University, with equal freedom and fullness, with the students in the classical courses.

The number of students, too, has greatly increased. The Medical Class has always been large. It has more than retained its original number, while the advantages for instruction have been much enlarged in the chemical laboratory, and in the means of illustration generally.

The Department of Science, Literature and the Arts, which in the Catalogue of 1852-3 shows the names of only sixty students, contained last year nearly two hundred and fifty students; and will this year number more than three hundred, which together with one hundred and seventy medical students will swell our Catalogue to nearly five hundred.

We have now also in operation a Department of Analytical Chemistry with a Laboratory, which is not surpassed by any other in the Union.

Here students are taught practical Chemistry, and are made to analyze the various substances of the earth, and to pursue a course of experiments directly connected with Agriculture and Manufactures; and are thus prepared both for industrial life, and for undertaking the office of giving instruction in Chemical Science.

The school of Engineering, under the direction of two very able professors, both of whom graduated at West Point at the head of their respective classes, will ere long perform a very important work for the State, in supplying from its own youth an efficient corps of Engineers.

The Observatory, erected by the citizens of Detroit is one of the first class; and under the direction of the distinguished astronomer who has charge of it, is fast gaining a name both at home and abroad. Here a distinct course, will go into operation at the beginning of next year; designed to make practical astronomers, as well as to communicate a theoretical knowledge.of one of the most useful, no less than one of the sublimest sciences.

The professors of the ancient and modern languages, well known as ripe scholars, have given a great impulse to their departments both by the thoroughness of their instruction, and by lectures on history, antiquity and the arts.

These lectures are now illustrated and enlivened by the beautiful collection, made by Professor Frieze in Europe, of Plaster casts, and *Terra Cotta* copies of pieces ancient statuary, and of Photographs of buildings and views.

The University has thus already won for itself an honorable reputation, and is regarded in other States, as an institution of which Michigan has just reason to be proud.

The influence of the University upon our system of Education is already felt in other grades. The Principal of the Normal School, and one of his chief assistants; and the Professor of Chemistry in the Agricultural School, are graduates of the University. In other institutions both in this State and in other States, they will also be found. During their under graduate course, a considerable number of its students teach, for limited periods, in the Primary Schools.

Some of the most respectable members of the different Professions, also, in this and the neighboring States, are graduates of the University of Michigan. They are found, again, in the halls of legislation. I am happy to recognize several in the present legislature; and, among the number, the honorable Speaker of the House.

Thus our entire system of Education, from the primary school to the University, presents itself as in a cheering and promising state of progress.

I am sure every citizen of the State of Michigan, must, upon reflection, feel the liveliest interest in carrying to maturity this noble beginning. I am sure a true hearted patriotism must lead him to say, "Let us perfect our Primary Schools; let us perfect our intermediate schools; let us perfect our University: Let us perfect the whole together. Yes, let us perfect the whole together, because, one cannot be perfected without the other, and all are necessary to the completeness of the system."

But how shall we perfect these schools of different grades which go to make up our system? I turn to the principles which have been demonstrated, and reply; Provide and sustain the Teachers required, and it will be done. A glorious Temple is to be erected; the materials are at hand; the plan is drawn out; provide the workmen capable of doing the work, and the beautiful walls will arise in noble proportions; the majestic front will show architrave, frieze and cornice resting on Doric columns; and on the pediment will be inscribed To THE TRUE, THE GOOD, AND THE BEAUTIFUL. Within there will not dwell a statue of Minerva made of gold, ivory and marble, but a spiritual Presence of Wisdom that shall fill the air with light, and enkindle an immortal inspiration. It will be such a Parthenon as will throw the glory of Athens' hill into the shade; and will never crumble into ruins for mankind to weep over as the memorials of departed greatness.

Provide the workmen—here lies the solution of the whole difficulty.

We must have our system in such operation as to raise up a sufficient number of well qualified Teachers to supply the Primary Schools. But this can be done only through Normal and Union Schools.

Our Normal School must be fully endowed and developed. And we shall require more than one Normal School. We must also have our Union, our intermediate Schools, by whatever name we call them, fully endowed and developed. Bnt to develope fully our Normal Schools and our intermediate schools generally, we must raise up for them a sufficient number of well qualified teachers; and this we shall do, by means of the University. But that the University may do this work, it must be fully endowed and developed also. At present we do not graduate a sufficient number of Young Men to supply the principal Teachers for the Union School—that class of Teachers, who by common consent, must have a collegiate, classical or scientific education. We continually have applications for Teachers that we cannot meet. The consequence is that we are compelled to send to Eastern colleges. We are doing the work in part, and we shall do it fully as we advance. We are graduating larger classes from year to year, and hence we are continually preparing a larger supply. A portion of course go into the professions and into business; but there is always another portion who devote themselves to teaching. As the intermediate schools go forward, they send us more pupils from year to year; and we in return send them more Teachers from year to year.

By increasing our educational advantages, we attract students from other States also. This yields a great benefit to our State; for a large proportion of the young men who are educated by us, become citizens of our State and form a most valuable addition to our population in the character of Teachers, and of professional men.

But how shall we keep up the supply of Teachers and Professors for the University itself? By what is properly a University course of study. Young men can now graduate as Bachelors of Arts, Bachelors of Science, and as Civil Engineers: and after this they can pursue their studies to advantage at the University for one or two years longer in special courses of Science and Literature. But for the full and proper development of this University course which lies beyond the point of graduation, we need more books, more apparatus, some additional buildings, and more Professors and Teachers.

Let it be remembered that where we have only six thousand volumes, we ought to have at least twenty thousand volumes, whether to meet our necessary wants, or to approach the standard of Eastern institutions. On apparatus, we have expended hundreds of dollars, when we ought to expend as many thousands. Altogether we have expended only about seventy thousand dollars on buildings. The Union school house at Ann Arbor, erected by its citizens, has cost nearly half that sum. Can any one tell me how much the State Prison at Jackson has cost, and how much the Asylum for the Insane will cost at Kalamazoo? I have met with no statement as to the former; but, it must have been a large sum.

I have heard the latter estimated at four hundred thousand dollars, nearly as much as the present available University fund. With these expenditures, I, of course, can find no fault. While crime exists we must have States prisons, whatever they may cost; and Asylums for the Insane and Blind are noble and divine charities, which a great and humane State may never refuse. I shall ever be one of their warmest advocates. I mention these only for the sake of comparison, and I ask, if so much is necessary for the punishment of crime, then what ought we to be willing to do in the way of Education to prevent it? and if so large a sum is reasonably necessary to make suitable provision for the blind and insane, who fortunately for humanity always form a small proportion of any population, then what may reasonably be required to endow and carry out an Institution which stands at the head of your Educational System, and where those who have eyes to see, and minds to perceive are to be educated;—an Institution designed to educate no very limited number, since here must be educated Clergymen, Physicians, Lawyers, Civil Engineers, Chemists, Astronomers, Scientific men generally, Authors, and Teachers and Professors of the highest grade—those who contribute most to the general diffusion of knowledge, who discharge the most important and sacred offices of society, who make our books, newspapers and periodicals, who perform the highest labors in Education, and who give substantial character and grandeur to a nation?

The facts of history, and the facts of daily observation cannot be disputed. Now there is no fact more luminous in history, no fact more clear to the widest observation, than that Universities have led the way in science, in literature, in art, in legislation, in general education, in the whole march of modern civilization.

From the University of Wittemberg came forth Luther and the Reformation: from the University of Cambridge came forth Bacon and Newton: from the University of Oxford came forth Locke. What spells are about these names! What streams of thought and influence spread out over the wide world from these single minds! From the University of Paris came forth La Place, Arago, and Le Verrier · from Jena came forth Alexander Von Humboldt. What would the world do without such men?

Go to the great Universities of Europe; go to such institutions in our own country as Yale and Harvard; and do you not find that here were reared the men who have made science, literature, jurisprudence, medicine, Theology, Philosophy—who in their immortal works in every department of knowledge, have opened the fountains whence have issued those streams which in their abundant fullness are carrying blessings far and wide, and reaching the humblest of our race?

In our University we have laid the foundations of such an institution; but we have done nothing more. I have spoken of a Library, we have not only few books, we have no Library building, and we have been obliged to fit up rooms in our old buildings. Nor have we a building for a Museum which, as well as a Library building ought to be fire proof; although, we have extensive collections in Natural history. And, here I would mention a fact honorable to our State as well as to our University. Lieutenant Trowbridge, a native of Michigan, a graduate of West Point, and for some time an assistant Professor there, and latterly entrusted by Dr. Bache with an important and dangerous service—the superintendence of the coast survey on our Pacific coast, in addition to his regular duties in that service, made a most valuable collection in Natural History consisting of three hundred new specimens, for the Smithsonian Institute. The Institute gratified with his intelligence and zeal, returned to him from his collection duplicates of all the specimens, and added seven hundred specimens more from its Museum. Before he knew of our intention to call him to a professorship, he had already in his own mind dedicated this noble collection of one thousand specimens to the University of his native State. We on our part, knew not until after we had called him, what a dowry he was to bring with him.

We have no place in which to arrange these specimens when they shall arrive, while the valuable collection already in our possesion, is only partially arranged in rooms ill suited to such a purpose, and much of it is still stored away.

Without buildings for our library and museum, we are also without any chapel or public hall; and are compelled to resort to the churches of the town, or to the hall of the union school, when we hold our commencements or public exhibitions of any kind, none of which are sufficiently spacious to accommodate the citizens of this State who are desirous of attending.

We have spoken of the necessity of increasing the number of our professors and assistants. A brief statement will here suffice.

We have an Observatory which has already been paid for by the citizens of Detroit within four or five thousand dollars, and which I cannot doubt will be entirely paid for by them; and which, therefore, as it now stands costs the State nothing. This Observatory is furnished to do work equal to any Observatory in our country, and perhaps equal to any in the world. The director of this Observatory is at work without an assistant. An Observatory, in itself, is a great institution, and requires a number of men to be employed. No great Observatory can be managed by one man alone.

In Cambridge two men of eminent science are devoted to the Observatory, without giving any instruction in the College. In Washington eight men are employed in the Observatory. The Dudley Observatory at Albany—to which Mrs. Dudley has already given seventy-six thousand dollars, Mr. Olcott ten thousand dollars, and several individuals sums of lesser amount, and to which even citizens of New York have already contributed several thousand dollars, and a citizen of Buffalo one thousand dollars,—this Observatory, it is calculated, will require ten thousand dollars a year to support it, and will employ a director and nine assistants of various kinds. Our Astronomer is the only laborer appointed to our Observatory; and he has, in addition, from eight to ten lectures a week to deliver. His economical and judicious plan is to raise up assistants from among our own students, who can be employed at moderate salaries. Two or three are now in a course of preparation.

In the department of chemistry where lectures have to be given to all the medical students, besides the students in the other department, and where in the analytical laboratory several hours every day are required, there is but one professor and one assistant.

The department of natural history, in all its vast extent, has a solitary professor. The scientific department, together with civil engineering has a course of instruction committed to two professors which at West Point employ twelve instructors.

The professor of Latin has one hundred and forty young men committed to his sole charge. The professor of Greek and the professor of Modern Languages are tasked in a similar manner.

We need at this moment a professor of English Literature, and a professor of History and Political Economy; and the whole range of Mental and Moral Science is committed to the President in connection with his other duties.

A Law Department which is loudly demanded and the establishment of which ought not to de delayed a single day, is still unprovided for.

Recollect it is the glory of our State that we have made the University a free institution. Hence, as our students increase, our expenses increase with no corresponding increase in our income.

Now for carrying out this University according to the noble plan of its founders, and for making it answer its great end in our system of education, its endowment is manifestly insufficient.

When we inquire respecting its necessary expenses, we are not to take the multitude of small colleges scattered through the different States as a standard to regulate our calculation.

Ohio, for example, has many of these, and yet she has not more than one or two institutions of any note, and not one which reaches the compass of a New England college. A State may grant charters with the power of conferring degrees, indefinitely, but this will not accomplish the work. The power to confer degrees does not imply the abilty to bestow education.

The policy of Michigan has been to bend her efforts, to make one complete institution, rather than a multitude of incomplete ones. Let us perfect our University; time will show whether we require more than one; we can establish more when they *are* required. But let us perfect one at least.

And here let me remark, that if we carry out our noble plan, and create a system of intermediate schools, we can elevate these schools more and more, until they shall equal, and even surpass these so called colleges: We can raise up in different parts of our state schools where our sons and daughters, near their own homes, can receive an admirable training, one far better than that for which they are now sent to distant boarding schools, at great expense.

In estimating the wants, in estimating the expense of the University, we must first of all look at what is to be accomplished; and if we refer to other institutions, we must refer to those which hold a rank, below which we do not desire to place our highest State institution of learning.

Take Harvard University and Yale College. Surely the great State of Michigan does not desire to place its University lower than the chief institutions of the comparatively small states of Massachusetts and Connecticut.

Now it is a fact worthy of our attention, that these institutions have not one-third more students than we have; while they have nearly two-thirds more instructors. I have the treasurer of Harvard's report, from which it appears that one hundred and seventy thousand dollars are annually expended to carry on that institution. I have not the treasurer of Yale's report, but as the number of instructors and students in this institution is about equal to that of Harvard, the expenses must correspond.

Union College, Schenectady, had originally grants and endowments exceeding ours. To these the President, Dr. Nott, has added an endowment of 600,000 dollars.

Columbia College, New York, has an endowment of more than two millions.

Peter Cooper of New York has alone founded a Scientific Institute by a gift of 500,000 dollars, which some estimate as one-fourth of his estate.

To the Astor Library, New York, 600,000 dollars have been appropriated by the original founder, and his son.

This all goes to show that great and efficient institutions of learning cannot be established and carried on without means proportionate to the greatness of the undertaking. Peter Cooper's Institute, and the Astor Library have each, alone, cost more than our University fund amounts to. Dr. Nott has given to Union College more than our fund amounts to. These enlightened donors calculated the greatness and value of what they undertook, and they gave accordingly. The same pecuniary principles which we apply in creating manufactories, or building railways, apply equally to literary institutions. The result is governed by the outlay: and when we set out for a result, we cannot look for miracles to help us, but must make our outlay square up to our expectations.

What we say with respect to the expenses of the University bears with no less force upon the primary and intermediate schools considered as parts of the great system. If we would raise up teachers of proper qualifications, through whose instrumentality alone our primary schools can be brought to perfection, our Normal and Union schools must be multiplied and endowed to an extent equal to the work they have to perform.

Each part of our system of education must cost much. The combined cost of the whole cannot but be great. This is the case with all great public works. Canals and Railways are constructed only at immense expense. A line of Steamboats requires a huge outlay. Our Educational System is our greatest public work of all; for, as we have shown, it makes that inner life of man in which lies all that makes his outer life, consisting, in part, of those great material improvements; and wherein lies all his capacity of receiving good and enjoyment from what composes his outer life. And yet our Educational System has cost us far less than many other public works. For example, we have expended at least ten times as much upon Railroads as upon our whole Educational System together. But whatever Railroads may cost, we shall not fail to construct them, for they form one of the great foundations of our material prosperity, and give us returns which answer to the outlay. And this is just the principle which governs us in all investments of capital: the investments are judicious where the returns are equal to the received value of the money. But money itself only represents other values which we regard as the substantial values. Money would be the most useless of all things, could we not build or buy houses; buy food and clothing; buy all the comforts, conveniences and enjoyments of life; sustain education, religious instruction, and legislation; maintain all the great interests of peace, and provide the sinews of war, by means of it. Money is of value only because it represents substantial values of various kinds, and may be exchanged for them. Thus it is perfectly plain, that we reach the same end whether we receive in return for our investments money simply, or that which we wish to buy with money. If I rent a farm it is the same to me whether I receive my rent in a portion of the natural produce or in money—whether I receive the wheat, vegetables, meat and fuel that I need in my daily consumption, or the money to buy them with.

This represents precisely the nature of investments in educational institutions. I may pay for the education of my children as I pay for any other substantial value; or I may unite in a joint stock company, where the stock shall represent a school house, books and apparatus, and the wages of teachers and where I receive the interest of my stock directly in the education of my children.

Of this nature are public school funds, in which every citizen, by the Constitution, is made a stockholder, the number of his shares being just as the number of his children; and where he receives education direct as the interest of his stock, instead of paying for education. If he refuses to send his children to school, then of course he refuses his dividend upon the stock. And the reason why education is made accessible in this way is obvious: Education as we have seen relates to the inner life of man, to his intelligence, his moral worth, his social elevation, his capacity for discharging his duties as a citizen, to all his well-being and happiness as a man; and therefore the State by establishing an educational fund makes an investment for all its citizens; and awards alike to all, to the poor, as well as to the rich, the greatest and most essential privilege of a human being.

Where education is left to be bought by each individual, like any other commodity, as there are many who will have no money to buy it, or money to buy only a very small proportion of it, the result will be that many will be left in ignorance. Men may be stinted in houses and food and clothing, and yet be true men and valuable members of the State; but just as men are left in ignorance, are they disqualified for the discharge of social and civic duties. Besides, as the inner life makes the outer life, and the cultivation of the inner life gives birth to those wants of a higher nature which excite to all industry and improvement, so to afford education to all, is to supply the taste and intelligence which impel and guide men, by the arts of industry, to amass property, and to provide themselves with all that makes up the life of civilization in a state of political freedom and dignity.

It is, therfore, the highest political wisdom as well as the highest humanity in any state, to provide for a public system of education, where education from the lowest to the highest grade shall be freely laid open to the whole people.

In establishing such a system it is not for us to suffer ourselves to be impeded by the question, "what will it cost?" The work should be accomplished to the utmost of our ability, whatever it may cost. Be assured, all money invested in this way, will give returns of the largest and most solid value.

This was the principle which guided the Pilgrim Fathers who landed on the rock of Plymouth. They landed in 1620. In 1636, they established Harvard College. In 1647, "it was ordered," to use their own laguage, "to the end that learning may not be buried in the graves of our forefathers, that every township, after the Lord hath increased them to the number of fifty householders, shall appoint one to teach all the children to write and read; and when any town shall increase to the number of one hundred families, they shall set up a grammar school; the masters thereof being able to instruct youth so far as they may be fitted for the University." [Bancroft's History, Vol. I., pp. 458-9.]

Within twenty seven years after their landing, amid all their privations, and hardships and sufferings, they established an entire system of public education, from the primary schools upwards. And what has been the result? That little State of Massachusetts, with her sterile soil and ungenial clime, is the grand center of our national intelligence, enterprise and wealth. There were born our political institutions. There were fought the first battles of the Revolution. The echoes of Lexington and Bunker Hill live in the atmosphere of the whole Union. In the history of our Country no battle of liberty ever has, or ever will be fought, in which Massachusetts has not, and, we feel assured, will not, stand in the van.

But Michigan in establishing such a system, has no hardships to encounter, no sacrifices to make.

Our Primary schools are based upon the appropriation made by Congress of every thirty-sixth section in every township of public lands, or of other lands equivalent thereto, for the use of schools.

It appears from the last Report of the Superintendent of Public Instruction, that the proceeds of this fund are increasing at a more rapid rate than the increase of children. "For the school year ending the Saturday previous to the last Monday of September, 1855," the amount raised by rate bill for the support of teachers was not quite fifty-seven cents per scholar, of those in actual attendance; and "the whole amount of money raised by tax upon the district schools of the State, for the support of schools was about one dollar and twenty-four cents for each child between the ages of four and eighteen years."

For the establishment of the University, Congress, in like manner, appropriated seventy-two sections of public lands. Out of this fund the University has been wholly supported up to the present time, with the exception of the contribution of the citizens of Detroit for erecting an Observatory.

For the establishment and support of the Normal School, twenty five sections of salt spring lands were appropriated by an act of the Legislature.

The Agricultural School has been established by a special appropriation.

The development of our system of education up to the point at which it has arrived, has been accomplished with little expense, and without any sacrifice. The lands which make up our wealth have constituted the main resources.

And now, just at this point when we are agitating the question, what shall be done for the complete development of this system, we find ourselves, by what may almost be called "a happy accident," in possession of another great fund of public lands. Congress passes "an act to enable the State of Arkansas to reclaim the 'Swamp Lands,' within her limits;" and for this purpose grants her all the swamp

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build stately cities, and spread out broad fields of the richest cultivation from lake to lake!

In comparison with that mighty population we are a little handful of people. We may easily be forgotten in the splendors of a riper age; and our legislation may occupy scarcely a page of history which they shall compile—of the first half century of this State or Empire—whatever it shall be.

But, if in this first half century be laid the foundations of institutions that cannot die; and if they can trace to our day the origin of their cultivation, their refinement, their happiness and their greatness; then they will write immortal histories of us; they will pour out their gratitude upon our memories; they will call us their fathers; they will fill poems and orations with the inspirations of our names; and proud will those be who can claim that our blood is flowing in their veins.

A Legislative Assembly meets here for forty days, and then disperses. The same individuals may never be collected here again. But these forty days may do a work, the glory of which shall not fade in forty centuries.